January 26, 2006

M E M O R A N D U M

TO: Charles W. Ariss, P.E., Engineering Manager
Boise Regional Office

FROM: Paul Wakagawa, P.E.
Technical Engineer 1

SUBJECT: Environmental Maintenance, LLC, Permit LA-000181-01, Permit Modification "B"
Staff Analysis for New Waste Stream (Industrial Wastewater)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of the *Rules for the Reclamation and Reuse of Municipal and Industrial Wastewater* IDAPA 58 .01.17.700 for issuing a modification to a wastewater-land application permit.

GENERAL DESCRIPTION

DEQ issued Environmental Maintenance, LLC (EM, LLC) a land application permit (LA-000181-01) on April 30, 2004. The facility is permitted to accept various high strength waste streams and land apply the combined wastewater on 515.6 acres located approximately 3 miles south of Bruneau, Idaho. The current waste streams approved for land application in this permit are septage, grease trap wastes, fish processing wastes, and cheese processing wastewater from WestFarm Foods and Glanbia Foods, Inc.

This permit modification adds an additional waste stream to the permit. This stream will be generated by a proposed new business located in Hagerman, Idaho called Idaho Bio Products. Idaho Bio Products plans to process animal blood to isolate proteins used as ingredients in medical products. The remaining blood after protein removal is the new waste stream proposed to be included in this permit.

SUMMARY OF EVENTS

Millenium Science & Engineering, Inc. (MSE) submitted the original request on April 12, 2005 to include the blood waste stream in the permit. DEQ responded June 30, 2005 stating the request could not be processed until compliance activities required by permit LA-000181-01 were completed. These included:

- CA-181-01, Vector and Odor Management Plan
- CA-181-02, Waste Solids Management Plan (WSMP)
- CA-181-05, Cropping Plan

In addition, plans and specifications for waste treatment facilities at EM, LLC were approved by DEQ in November 2003. The plans included solids separation facilities, a storage lagoon for the wastewater after solids separation, and a second lagoon for cheese wastewater. At this time, the lagoon without solids separation facilities has been constructed. DEQ requested the solids separation facilities be completed prior to processing this request.

On November 29, 2005, a meeting at the request of EM, LLC, was held at DEQ to discuss the current status of the project. EM, LLC's primary purpose for this meeting was to obtain approval for the inclusion of the Bio Products waste stream in the permit. At this meeting, EM, LLC indicated interest in shifting from a land application system to a total evaporation system. Discussion also included the status of installing solids separation facilities and providing an updated waste solids management plan.

Prior to shifting to a total evaporation system, staff recommends EM, LLC complete a detailed water balance to determine the maximum amount of wastewater that can be accepted on an annual basis. The maximum volumes of wastewater in Table 1, below, were determined to be feasible for slow rate land application, however, EM, LLC would not be able to handle those volumes of wastewater if the system were operated as a total evaporation system.

On December 16, 2005, at DEQ's request, MSE provided additional information regarding the blood waste that would be generated at Idaho Bio Products.

DESCRIPTION OF WASTEWATER LAND APPLICATION SYSTEM

Septage, grease trap waste, fish processing wastes, and wastewater from WestFarm Foods and Glanbia Foods will be delivered by truck to an offloading facility located at the land application site. Plans and specifications for two offloading systems were approved by DEQ in November 2003.

The system for septage, grease trap waste, and fish processing wastes consisted of an offloading area, solids separation facilities, and a lined storage lagoon for the separated liquid. The lagoon capacity is approximately 1.3 million gallons. At this time, this system has not been constructed.

The second system was designed for offloading waste streams with minimal solids such as the WestFarm Foods and Glanbia Foods wastewater. The lagoon for this system has a capacity of approximately 1.3 million gallons. This lagoon has been constructed and has had wastewater from WestFarm Foods delivered and stored in it. No land application has been reported at this time.

The original plan was to pump wastewater from the storage lagoons into tank trucks and apply to fields using a spreader bar. Application by truck was proposed on fallow fields to be cropped the following year. The proposed crops were barley, oats, wheat, and alfalfa.

Waste solids were to be collected in the separator basin, dewatered, and removed for composting. Plans were to apply the composted solids on the land application site.

WASTEWATER QUALITY AND LOADING RATES

EM, LLC's original plan was to accept the waste streams shown in the table below.
Table 1.

Stream	Maximum Volume, Gallons per year
Septage	1,500,000
Grease Trap Waste	200,000
Fish Processing Waste	250,000
WestFarm Foods Wastewater	1,100,000
Glanbia Foods, Inc. Wastewater	3,300,000
Total Volume	6,350,000

EM, LLC planned to combine solids from the septage, grease trap, and fish waste solids with solids separated from car wash sump wastes for composting. The car wash sump waste receiving facilities were previously approved by DEQ in 1998. Permit LA-000181-01 contains a compliance activity requiring the preparation of a Waste Solids Management Plan (WSMP) for DEQ review and approval, prior to starting land application.

MSE developed a draft WSMP in August 2003. In November 2003, DEQ provided comments and requested additional information, including composting procedures and leachate controls. MSE provided an update on the status of the WSMP in October 2004. In April 2005, MSE proposed completing construction of the solids separation concrete pad and conducting pilot tests of the composting operations. In addition, this letter stated the car wash sump solids were no longer being considered in the composting operation or for land application. A WSMP, approved by DEQ, is still required.

Constituent Loading Rates

Permit LA-000181-01 contains the following loading rate limits:

- Maximum COD Loading Rate, GS and NGS seasonal average: 50 lbs/acre-day
- Maximum Nitrogen Loading Rate: 150% of crop uptake
- Maximum Phosphorus Loading Rate: Provisions for inclusion of limit if DEQ determines limit is necessary

The maximum estimated loading rates from wastewater and composted solids is shown in Table 2 below (data from the permit staff analysis dated March 19, 2004) along with the increase from the proposed Idaho Bio Products blood waste stream.
Table 2.

Constituent	Loading Rates Assuming Maximum Volume of Original Waste Streams	Incremental Loading Rate from Idaho Bio Products Waste Stream	Maximum Loading Rate Including Idaho Bio Products Waste Stream
COD	41.6 lbs/acre-day	0.9 lbs/acre-day	42.5 lbs/acre-day
Nitrogen	151 lbs/acre-year	40 lbs/acre-year	191 lbs/acre-year
Phosphorus	75 lbs/acre-year	<1 lb/acre-year	75 lbs/acre-year
NVDS	771 lbs/acre-year	279 lbs/acre-year	980 lbs/acre-year

The incremental loading rate from the Idaho Bio Products waste stream was provided in a letter from MSE dated April 12, 2005. The maximum volume of blood waste to be generated was reported to be 3,000 gallons per month or approximately 36,000 gallons per year. MSE provided the laboratory data sheets of the blood waste streams on December 16, 2005 to confirm the wastewater quality.

RECOMMENDATION

Staff recommends a modification for inclusion of the Idaho Bio Products waste stream be issued. The system is currently approved for other high strength waste streams. EM, LLC will be required to manage this additional waste stream in accordance with the limits and requirements in permit LA-000181-01.

This permit modification will allow EM, LLC to discharge this waste stream into the on-site storage lagoon. Land application of wastewater or waste solids is not allowed until EM, LLC completes certain

requirements, including compliance activities for vector and odor management, waste solids management, and cropping plans as specified in permit LA-000181-01.

If EM, LLC decides to operate the system as a total evaporation system, staff recommends the following items be completed by EM, LLC and submitted to DEQ for review and approval:

- Detailed water balance to determine the maximum quantity of wastewater that can be accepted.
- An application to modify permit LA-000181-01 to reflect the revised operation.